

What is claimed is:

1. A method of producing an electronic device, the method comprising:
electrically and mechanically coupling a packaged integrated circuit to a
5 leadframe to produce an intermediate assembly;
encapsulating at least a portion of the intermediate assembly with a
molten encapsulating material; and
permitting the molten encapsulating material to substantially solidify.
- 10 2. The method as defined by claim 1 wherein a portion of the lead frame
remains exposed after the intermediate assembly is encapsulated.
3. The method as defined by claim 1 wherein the integrated circuit includes
a die, a cap being secured to the die, coupling including mechanically coupling
15 the die to the leadframe.
4. The method as defined by claim 1 wherein coupling includes surface
mounting the integrated circuit to the leadframe.
- 20 5. The method as defined by claim 1 wherein the integrated circuit includes
a gyroscope or an accelerometer.
6. The method as defined by claim 1 wherein encapsulating includes insert
molding the intermediate assembly within a molding machine.
- 25 7. The method as defined by claim 1 wherein the integrated circuit has a
substantially planar interface side, coupling including mounting the
substantially planar interface side substantially flush against the leadframe.

8. The method as defined by claim 1 wherein encapsulating includes encapsulating the entire intermediate assembly.

5 9. The apparatus produced in accordance with the method as defined by claim 1.

10. An apparatus comprising:

a leadframe;

10 at least one packaged integrated circuit coupled to the leadframe; and
an encapsulating material on at least a part of both the leadframe and the integrated circuit.

11. The apparatus as defined by claim 10 wherein the integrated circuit
15 includes a package that is directly mounted to the leadframe.

12. The apparatus as defined by claim 10 wherein the integrated circuit includes a capped die.

20 13. The apparatus as defined by claim 10 wherein the integrated circuit is a MEMS device.

14. The apparatus as defined by claim 10 wherein the integrated circuit includes an accelerometer or a gyroscope.

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15. The apparatus as defined by claim 10 further including an interface port capable of coupling with an external device, the interface port being electrically connected to the leadframe.

16. The apparatus as defined by claim 10 wherein the integrated circuit includes an interface side that is flush mounted against the leadframe.

5 17. The apparatus as defined by claim 10 wherein the integrated circuit is electrically connected to the leadframe without a wire bond.

18. A motion detector capable of sensing motion of an external object along or about at least one of first and second axes, the motion detector comprising:

10 a sensor mount; and

a motion sensor coupled with the sensor mount,

the sensor mount having a first coupler that is capable of mounting the sensor mount to the external object in a first orientation that orients the sensor to sense motion about or along the first axis,

15 the sensor mount having a second coupler that is capable of mounting the sensor mount to the external object in a second orientation that orients the sensor to sense motion about or along the second axis.

19. The motion detector as defined by claim 18 wherein the first coupler
20 includes a conductive tube for receiving a fastener.

20. The motion detector as defined by claim 18 wherein the first coupler is substantially orthogonal to the second coupler.

25 21. The motion detector as defined by claim 18 wherein the sensor is capable of detecting motion along or about one axis only.

22. The motion detector as defined by claim 18 wherein the sensor is a MEMS device, the MEMS device being an accelerometer or a gyroscope.

23. The motion detector as defined by claim 18 further including circuitry for
5 detecting the orientation of the sensor mount.

24. The motion detector as defined by claim 18 wherein the motion detector is capable of being alternatively coupled in one of the first or second orientations to respectively detect motion along or about one of the first and second axes.

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25. The motion detector as defined by claim 18 wherein the sensor mount also has a third coupler that is capable of mounting the sensor mount to the external object in a third orientation that orients the sensor to sense motion along or about a third axis, the motion detector being capable of being alternatively coupled in
15 one of the first, second, and third orientations to respectively detect motion along or about one of the first, second, and third axes.

26. A sensor mount for mounting a motion sensor to an external object, the motion sensor being capable of detecting motion along or about a sensor axis, the
20 sensor mount comprising:

a mounting area for mounting the sensor; and
a coupler system that is capable of coupling to the external object in a manner that aligns the sensor axis with either one of first and second axes,
the motion sensor being capable of detecting motion of the external object
25 along or about the axis to which the sensor axis is aligned.

27. The sensor mount as defined by claim 26 further comprising circuitry for detecting the orientation of the sensor mount.

28. The sensor mount as defined by claim 26 wherein the coupler system includes a plurality of substantially orthogonal bushings that are capable of receiving a fastener.

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29. The sensor mount as defined by claim 26 wherein the sensor is capable of detecting motion along or about one axis only.

30. The sensor mount as defined by claim 26 wherein the sensor is a MEMS device, the MEMS device being an accelerometer or a gyroscope.

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31. The sensor mount as defined by claim 26 wherein the coupler system is capable of being mounted to the external object in a manner that aligns the sensor axis with either one of the first axis, the second axis, or a third axis, the first, second, and third axes being substantially orthogonal.

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32. The sensor mount as defined by claim 26 wherein the sensor mount has a lead frame, the sensor being mounted to the leadframe to form an intermediate assembly, the intermediate assembly being at least partly encapsulated by an encapsulating material.

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33. A leadframe for receiving a motion sensor capable of detecting motion along or about a sense axis, the leadframe comprising:

at least one mounting location,

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the at least one mounting location having a plurality of contacts positioned to be capable of receiving the motion sensor in either a first orientation or a second orientation, the contacts being capable of electrically communicating with the motion sensor,

the first orientation aligning the sense axis with a first axis,
the second orientation aligning the sense axis with a second axis.

34. The leadframe as defined by claim 33 wherein the first axis is substantially
5 orthogonal to the second axis.

35. The leadframe as defined by claim 33 wherein the at least one mounting
surface includes a first surface and a second surface, the first surface being
substantially orthogonal to the second surface.

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36. The leadframe as defined by claim 33 wherein the plurality of contacts are
on a single mounting surface.

37. The leadframe as defined by claim 33 wherein the plurality of contacts are
15 positioned to be capable of receiving the motion sensor in either one of the first
orientation, the second orientation, or a third orientation,
the third orientation aligning the sense axis with a third axis.

38. The leadframe as defined by claim 37 wherein the first, second, and third
20 axes are all substantially orthogonal to each other.

39. The leadframe as defined by claim 33 wherein the motion sensor includes
a gyroscope or an accelerometer.

25 40. A motion detector comprising:
a motion sensor capable of detecting motion along or about a sense axis;
and
a leadframe having at least one mounting location,

the at least one mounting location having a plurality of contacts positioned to be capable of receiving the motion sensor in either a first orientation or a second orientation, the contacts capable of electrically communicating with the motion sensor,

- 5 the motion sensor being coupled with at least one of the plurality of contacts in either the first orientation or the second orientation,
the first orientation aligning the sense axis with a first axis,
the second orientation aligning the sense axis with a second axis.

10 41. The motion detector as defined by claim 40 wherein the motion sensor has package with a side having a set of interface contacts, the set of interface contacts being coupled to at least one of the plurality of contacts of the leadframe.

15 42. The motion detector as defined by claim 40 wherein the first axis is substantially orthogonal to the second axis.

43. The motion detector as defined by claim 40 wherein the at least one mounting surface includes a first surface and a second surface, the first surface being substantially orthogonal to the second surface.

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44. The motion detector as defined by claim 40 wherein the plurality of contacts are on a single mounting surface.

45. The motion detector as defined by claim 40 wherein the plurality of
25 contacts are positioned to be capable of receiving the motion sensor in either one of the first orientation, the second orientation, or a third orientation,
the third orientation aligning the sense axis with a third axis.

46. The motion detector as defined by claim 45 wherein the first, second, and third axes are all substantially orthogonal to each other.

47. The motion detector as defined by claim 40 wherein the motion sensor
5 includes a gyroscope or an accelerometer.

48. The motion detector as defined by claim 40 further comprising an encapsulating material on at least a part of both the leadframe and the motion sensor.